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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.        | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------------|------------------|
| 09/889,557  | 07/27/2001  | Marc Girault         | 211526US2PCT               | 7668             |
| 22850   | 7590        | 05/27/2005           | EXAMINER                   |                  |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.<br>1940 DUKE STREET<br>ALEXANDRIA, VA 22314 |             |                      | PERUNGA VOOR, VENKATANARAY |                  |
|   |             |                      | ART UNIT                   | PAPER NUMBER     |

2132

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/889,557

Applicant(s)

GIRAULT ET AL.

Examiner

Venkatanarayanan Perungavoor

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1- 14 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,8,13 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Arguments*

1. The Applicant's arguments regarding Schneier being silent with respect to the use of Chinese Remainder theorem in authentication process is incorrect see enclosed NPL<sup>1</sup>. As Schneier discloses the use of Chinese Remainder theorem to "speed up" the calculating of keys used in authentication. And further, the Applicant is reminded it is not required that the prior art disclose or suggest the properties newly-discovered by an applicant in order for there to be a prima facie case of obviousness. See *In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897, 1905 (Fed. Cir. 1990). Moreover, as long as some motivation or suggestion to combine the references is provided by the prior art taken as a whole, the law does not require that the references be combined for the reasons contemplated by the inventor. See *In re Beattie*, 974 F.2d 1309, 24 USPQ2d 1040 (Fed. Cir. 1992); *In re Kronig*, 539 F.2d 1300, 190 USPQ 425 (CCPA 1976) and *In re Wilder*, 429 F.2d 447, 166 USPQ 545 (CCPA 1970).
2. The Applicant's arguments regarding the use of Chinese remainder theorem in the present invention is suggested by Shamir. As Shamir is suggestive of the reduced of  $x$ ,  $e$  and  $n$  in  $y = x^e \pmod n$  see Page 4 Ln 18-22 & Ln 44-55. Shamir suggests  $n$  being factored into  $p$  and  $q$ , also talks of a small value of  $x$  in order to provide for benefits in size being smaller and faster calculation. And further

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Shamir discloses the choosing of  $e$  based on the  $n$  and  $x$ , and thus if  $n$  and  $x$  are being modified so must  $e$  in order to provide for significant "wraparound". Shamir anticipates the reduction of the instant invention by taking the memory and computing power needed to carry out this calculation in account and the reduction is suggested as one of these methods see Page 4 Ln 24-29.

3. The Applicant's amendments with respect to specifications and claims render the specification objection and 35 USC §101 rejection moot. And thus the specification objection and claim rejection are withdrawn.

### ***Response to Amendments***

#### ***Claim Rejections – 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
5. Claim 8 rejected under 35 U.S.C. 103(a) as being unpatentable over EP0325238 to Shamir in view of Scheiner.

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<sup>1</sup> Schenier, Bruce. "Public-Key Algorithms: RSA." Applied Cryptography: Protocols, Algorithms and Source Code in C. New York: John Wiley & Sons, 1996. pp 470.

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6. Regarding Claim 8, Shamir discloses an authentication process involving a first device, which possesses a public key  $v$  and a secret key  $s$ , these keys being related by an operation modulo  $n$ , where  $n$  is an integer, the modulus  $n$  being specific to the first device and a second device, which knows the public key  $v$ , these devices being provided with means to exchange zero-knowledge information and carry out cryptographic calculations on this information, some calculations being carried out modulo  $n$ , the process being characterized in that the modulo  $n$  operation is of the kind  $v = s^{-t} \pmod{n}$  being a parameter see Abstract & Page 4 Line 33-49. But, Shamir does not disclose the use of Chinese Remainder method. However, Scheiner discloses the use of Chinese Remainder's method see NPL<sup>2</sup>. It would be obvious to one having ordinary skill in the art at the time of the invention to the Chinese Remainder method in the invention of Shamir in order to speed up calculations as taught in Scheiner see NPL<sup>3</sup>.

7. Regarding Claim 9, The "first device selects at least one integer at random ranging between 1 and  $n-1$  and calculates at least one parameter  $x$  equal to  $r^t \pmod{n}$ , then at least one number  $c$  that is at least one function of the at least one of a parameter and a message, and sends the at least one number  $c$  to the second device, the second device receives the  $c$ , selects one number  $e$  at random and sends this question to the first device, the first device receives the

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<sup>2</sup> Schenier, Bruce. "Mathematical Background: Number Theory." Applied Cryptography: Protocols.

question e, carries out at least one calculation using the at least one number e and the secret key s, the result of the at least one calculation yielding at least one answer y and sends the at least one answer y to the second device. The second device receives the answer y, carries out one calculation using the public key v and the modulus n, and checks with a modulo n calculation that the result is coherent with the received at least one number c" is met by Shamir see Page 2 Line 44 - Page 3 Line 41.

8. Regarding Claim 13, The "a message signature process configured for a device provided with a public key v and a secret key s, the public and private keys being related by a modulo n calculation, where n is an integer, which is specific to the device, the process utilizing means configured to calculate at least one number c that is a function of a message M to be signed, configured to calculate at least one number y that is a function of the secret key s, and configured to transmit the numbers y and c that are the signature of the message and the message M, wherein the modulo n operation is  $v = s^{-t} \pmod{n}$ , t being a parameter" is met by Shamir see Abstract & Page 4 Line 33-49 & Page 2 Line 44 - Page 3 Line 41.
9. Regarding Claim 14, The "device selects an integer r at random between 1 and n-1, calculates a parameter x equal to  $r^t \pmod{n}$ , calculates at least one number e that is a function of parameter x and the message M to be signed, calculates

the at least one number y using its secret key s, said at least one number y being a function of numbers r and e, and transmits the numbers c and y as the signature" is met by Shamir see Page 2 Line 44 - Page 3 Line 41.

***Allowable Subject Matter***

- 10.** Claim 10 and 11 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Conclusion***

- 11. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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<sup>3</sup> See footnote 1.


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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Venkatanarayanan Perungavoor whose telephone number is 571-272-7213. The examiner can normally be reached on 8-4:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Venkatanarayanan Perungavoor  
Examiner  
Art Unit 2132

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5/20/2005

  
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